



Analysis on the Large Reservoirs Precipitation Enhancement Experiment and Evaluation in Hunan

Lin Tang, Qiong Li, Dongying Xu, and Zhongbo Zhang
Hunan Weather Modification Office, Changsha, China (1420949@qq.com)

Abstract During 2001 to 2007, artificial rainfall experiments were operated to generate electricity in four reservoirs in Hunan. This article presented some surveys about seven experiments, initially evaluated its operation effect and directly economic benefit. Under the advantageous synoptic situation, operating designed surface cloud-seeding to summer cumulus, developing and utilizing effectively water source over large reservoirs could increase surface precipitation, surface flow and the volume of reservoir. In order to evaluate its effect and benefit impersonally and scientifically, non-random zone control regression method and single cannon artificial rainfall method was used to test and estimate it. The analysis showed, while cloud-seeding rate was 0.24 and runoff rate was 0.3~0.5, the increased water amount of seven times was 5.67 hundred million stere. Using water consumption rate to generate electricity method to analyze benefit, it showed that the operation increased 40 million and 20 thousand kilowatt-hour or 14.6146 million yuan, namely its input-output ratio was 1:5.67. The result indicated rainfall enhancement for impounding water could not only increase the volume of reservoir, but also produce larger economic benefit for hydropower department, so rainfall enhancement was considered the little-input, high-enhancement and obvious-benefit project.

Key words Artificial rainfall; Reservoir; Evaluation of effect and benefit